

**Detroit Fire Department  
Fire Fighting Division Resources  
Follow-up of Latest Performance Audit  
March 2001**




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## MEMORANDUM

**DATE:** May 25, 2001

**TO:** Mayor Dennis Archer  
Honorable City Council

**FROM:** Joseph L. Harris  
Auditor General 

**RE:** Follow-up results of audit findings and related recommendations included in our Performance Audit Report of the Fire Fighting Division Resources of the Detroit Fire Department, issued in November 1999.

Attached for your review are the results of our follow-up of the audit findings and related recommendations included in the Performance Audit Report on the Fire Fighting Division Resources of the Detroit Fire Department, issued on November 18, 1999. The performance audit focused on the human resource, training, apparatus and equipment needs of the Detroit Fire Department's Fire Fighting Division.

This report contains an executive summary; our audit purpose, scope, and methodology; and follow-up results. A copy of this report has been provided to the Detroit Fire Department.

We appreciate the cooperation and assistance received from the employees of the Detroit Fire Department in the performance of our follow-up.

**Detroit Fire Department  
Fire Fighting Division Resources**

**Follow-up of Latest Performance Audit**

**February 2001**

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## **EXECUTIVE SUMMARY**

### **Detroit Fire Department Fire Fighting Division Resources**

#### **Introduction**

This report is based on procedures performed in January, February, and March of 2001 and contains the results of our follow-up on the status of twelve audit findings and related recommendations included in our Performance Audit Report of Detroit Fire Department's (DFD) Fire Fighting Division resources, issued November 18, 1999.

#### **Objective**

Our audit objective was to determine whether the Detroit Fire Department took corrective action to address the twelve audit findings included in the report.

#### **Overall Conclusion**

The DFD has taken corrective action on one finding, only partial corrective action for nine findings, and has not taken any corrective action on two findings. The DFD's management is to be commended for its efforts to take corrective action on ten of the twelve findings.

Some improvements have been made in staffing, training, acquiring new fire apparatus, vehicle maintenance, building maintenance, planning, and administration. However, much more needs to be done. The DFD is still not adequately staffing all fire companies with four personnel; training is not being accomplished as required; fire apparatus, mainly ladder trucks are not properly maintained; and an inventory system to control equipment and supplies still has not been implemented.

The DFD is still in need of great change. There is still a lack of professional civilian administrative personnel (i.e., planning, accounting, human relations, labor relations, risk management) that should be part of any organization the size of the DFD. The Department still lacks a good management information system. Statistics, records, and reports are not maintained and analyses are not performed as needed and required. The DFD management does not have the tools to properly assess its human resources, fire apparatus, equipment, maintenance, training, and budgetary needs, to properly evaluate its performance. Without such changes, the DFD will not be effective in holding responsible personnel accountable for doing their jobs.

Many of the fire stations need major repairs and may no longer be located in and around major populated areas in the City, as demographics have changed in the City. Most of the fire stations are over fifty years old and many do not properly accommodate the new apparatus. Some fire station floors need to be reinforced to take the increased weight of the new vehicles. Doors on some fire stations cannot accommodate the height of some vehicles. Some fire stations cannot accommodate the length of the new vehicles. Also, the number and types (i.e., engine, ladder, and squad) of fire companies may be obsolete. Changes are needed to provide the City with: (1) modern fire stations that can accommodate modern fire apparatus deployed in locations that best serve current demographics and public safety; and (2) an appropriate number of engine, ladder,

squad, and specialized (e.g., HAZMAT, confined space, etc.) fire companies needed to serve the public safety.

In addition, two key organizational issues not included in our performance audit report that impact the DFD's performance and need to be addressed are: (1) qualifications for fire officers, specifically Battalion and Division Chiefs, and (2) a single union represents both fire fighters and fire officers, including the Fire Chief.

Fire officers including the Battalion and Division Chiefs, such as the Superintendents of Apparatus and Training, are promoted based solely on seniority. Education requirements include only education equivalent to graduation from a four-year high school. In addition, they are not receiving training and education on the DFD's organization, leadership, management, and the NFPA's standards. The findings detailed in the audit report and in this follow-up are caused, in part, by poor management resulting from a lack of knowledge by fire officers of the DFD's policies, procedures, goals, and NFPA standards. The DFD needs to provide this training and require fire officers to obtain appropriate training as a condition of their position.

Michigan law permits fire officers and the fire fighters they supervise to be in the same bargaining unit, creating an environment conducive to conflicts of interest. Predictably, the DFD will fall short in the area of accountability as long as fire officers remain in the same union as the fire fighters. Unfortunately, there is not much the DFD can do to change this, other than lobbying to change the State law.

The DFD accomplishments since our audit include the following: (1) acquisition of 14 new engine trucks, 2 platform ladder trucks, and 11 new ambulances; (2) orders placed for 47 other vehicles to be received in the 2001 calendar year, including 2 engine trucks, 11 ladder trucks, 6 squad vehicles, and 9 ambulances; (3) fire fighter staffing levels improved in the last three and one-half months of the 2000 calendar year; (4) plans and programs created to reduce absences, to improve training, and to improve vehicle maintenance; (5) an Attendance Control Program was implemented to reduce the abuse of attendance rules; (6) more training is scheduled for recruits for the calendar year 2001; (7) a HAZMAT team has been activated; (8) drivers training was increased in the calendar year 2000; (9) a high percentage of fire hose and SCBA air cylinder tests conducted in the 2000 calendar year; (10) preventative maintenance was performed on all fire apparatus in 2000; (11) daily and weekly fire apparatus reports were initiated that provide the DFD management with critical information on the repair status of vehicles; (12) a five-year capital agenda was prepared that provides for major repairs to nine fire stations each year, such as roof repairs, window replacements, and heating system repairs; and (13) fire fighting battalions were reorganized to report to the Fire Chief. Many changes are presently in progress, but there remains much more to be done as detailed below.

The DFD has failed to take sufficient corrective action to: (1) staff all 70 fire fighting companies with four fire fighters every day; (2) implement a risk management program to reduce the number of injuries to fire fighters; (3) schedule vacations more effectively; (4) provide annual HAZMAT refresher training to all fire fighters; (5) conduct fire officer training; (6) properly maintain ladder trucks to ensure that aerials and water pumps operate; (7) conduct all required service tests such as aerial and water pump service tests; (8) implement a work order system for more meaningful repair reports; (9) perform body work and minor repairs for all fire apparatus; (10) establish an adequate inventory

system and conduct a physical inventory; (11) restrict access to the storeroom; (12) perform a complete and accurate inventory of all SCBA air cylinders; (13) make timely repairs of building maintenance problems such as leaking faucets, roof leaks, broken windows, plastering, and painting; and (14) provide civilian administrative staff with appropriate skills and experience.

Other matters that came to our attention during the follow-up include upgrading mechanic job descriptions and providing them with training to meet the new NFPA 1071 standards for emergency vehicle technicians (EVTs) and there were no reserve ladder trucks at the time of our follow-up review. Also, the DFD could lessen the ordering time for Fire Apparatus Division repair parts and supplies by authorizing Division personnel to obtain verbal quotes instead of written quotes for items amounting to less than \$2,000 and increasing the amount of the Apparatus Division's imprest cash fund.

To enhance the DFD's ability to improve the management and performance of its functions, management needs to implement one or more of the following recommendations: (1) obtain professional civilian administrative personnel to improve management information and accountability, (2) require ongoing fire officer training and education to include the DFD's organization, leadership, management, and the NFPA's standards, (3) take action to cause separate unions for fire officers and fire fighters, to the extent practical, (4) determine and establish the number and type of fire fighting companies actually needed, and (5) determine the deployment of fire stations throughout the City based on current and projected demographics in the City of Detroit.

### **Summary of Findings**

The following summary provides the current status of each audit finding, based on our follow-up:

Finding Number	Finding	Status of Finding
1	Minimum Fire Fighting Company Strength Should be Four Personnel	Corrective action has not been taken.
2	Need to Reduce Injuries and Improve Scheduling of Vacation and Recruit Training	Partial corrective action was taken, however additional corrective action is necessary.
3	DFD Not Fully Prepared for HAZMAT Incidents	Partial corrective action was taken, however additional corrective action is needed.
4	Need to Improve Training of Fire Fighters	Partial corrective action was taken, however additional corrective action is needed.
5	Replacement Program Needed for Fire Apparatus	Corrective action was initiated and results are in progress.
6	Preventative Maintenance, Oil Changes, and Service Tests Need to be Completed as Required	Partial corrective action was taken, however additional corrective action is needed.

7	Need for Meaningful Vehicle Maintenance Records and Reports	Partial corrective action was taken, however additional corrective action is needed.
8	Need for an Effective Inventory Control System	Corrective action has not been taken.
9	Need to Inventory and Test SCBA Air Cylinders as Required	Partial corrective action was taken, however additional corrective action is needed.
10	Need to Deliver Equipment and Supplies to Fire Fighters	Partial corrective action was taken, however additional corrective action is needed.
11	Repairs Needed for Fire Stations and Training Academy	Partial corrective action was taken, however additional corrective action is needed.
12	Need for Reorganization	Limited corrective action was taken, and significant additional corrective action is needed.

## **PURPOSE, SCOPE, AND METHODOLOGY**

### **Purpose**

This report is intended to provide the Mayor, City Council, and management of the Detroit Fire Department with an update on the status of the twelve findings included in the Performance Audit Report of the Detroit Fire Department, issued November 18, 1999.

### **Scope**

In January, February, and March of 2001, we performed selected procedures to determine whether the Detroit Fire Department took corrective actions to address the twelve findings included in our latest Performance Audit Report of the Detroit Fire Department. Where corrective action was taken, we determined whether such action was adequate and effective. Where corrective action was not taken, or only partial corrective action was taken, we determined the reason for not doing so and identified the associated risk.

The audit was conducted in accordance with Government Auditing Standards issued by the Comptroller General of the United States and accordingly included such tests of the records and other auditing procedures as we considered necessary in the circumstances.

### **Methodology**

We interviewed Department administration, fire officers, and fire fighting personnel. We observed the DFD facilities, training, vehicles, and equipment. We examined pertinent documentation, records, and reports. Most of the documentation, records, and reports were provided by the DFD and included staffing reports, maintenance reports, training records, company reports, policies, and directives.



## **FOLLOW-UP RESULTS**

Each of the twelve findings and related recommendations, included in our audit report entitled, "Detroit Fire Department Fire Fighting Division Resources", issued November 18, 1999, and the follow-up results for each, are presented beginning on this page and the pages that follow.

### **Finding 1: Minimum Fire Fighting Company Strength Should Be Four Personnel**

The Detroit Fire Department (DFD) needs to staff each fire fighting company and apparatus with a minimum of four personnel, based on industry standards. The only exceptions are the TAC (Tactical) and Airport units, which have a minimum staffing of three personnel. The Department is staffing companies with less than four personnel because it does not have a sufficient number of personnel available. As a result, the effectiveness of the fire fighters response to emergency incidents is reduced and the safety of fire fighters is more at risk.

### **Recommendation**

We recommend the DFD staff each fire fighting company with a minimum of four personnel, and close companies when sufficient staffing is not available. In addition, we recommend the DFD carefully investigate available options and choose the most effective method(s) to ensure sufficient staffing to meet its fire suppression goals and best serve the community.

### **Follow-up Results**

#### **Corrective action has not been taken.**

The DFD is not staffing all companies with four fire fighters per company and has not investigated options such as reducing the number of companies.

Staffing levels improved in the last three and one-half months of the year 2000 to an average daily strength of 286, due to the graduation of a large recruit class (88) in September, 2000. This enabled the DFD to staff on average four personnel for 55 (or 79%) of the 70 fire fighting companies from September to December 2000. In the first eight and one-half months of the year 2000, staffing levels were low and fire fighter vacancies and absences were high, which resulted in the DFD staffing an average of four personnel for 30 (or 43%) of the companies. The DFD graduated a recruit class in March 2001 and has three more recruit classes scheduled for completion in 2001, which should continue the improvement in staffing levels.

The DFD par strength, the number of personnel required to provide four personnel for each of the seventy DFD companies, plus three members for the TAC unit, plus three members for the airport unit, plus nine battalion chiefs and one senior chief has increased by 4 from 296 to 300, since November 1999. This is due to 4 additional personnel needed to properly staff the Hazardous Materials team. The budgeted number (1,297) of fire fighters has not changed to accommodate the increase in par strength. As a result, it has become more difficult for the DFD to meet par strength.

Fire fighter strength is also diminished by personnel detailed for administrative duties and the Personal Guidance Unit (1 fire fighter), and the 4 fire fighters managing the

fire fighter union. In addition, fire fighter strength is lessened by absences due to injuries, sickness, vacations, and other allowable time off. The DFD management said absences were excessive and attributed this to a lack of enforcement by fire officers of the DFD Attendance Control Policy, including discipline for attendance abuses. The DFD management said that fire officers failed to discipline and even covered-up for staff with excessive absences, at times. The DFD's management indicated this was because fire officers and the staff they supervise are members of the same union and some fire officers are reluctant to discipline a fellow union member. As a result of the problems noted above, it is unlikely that the DFD's fire fighting division with a budgeted strength of 1,297 positions in the year ending June 30, 2001, will be able to staff all 70 companies with four fire fighters every day of the year.

We recommended in our audit report, dated November 1999, that the DFD carefully investigate available options, which includes the closing of companies, to ensure sufficient staffing to meet its fire suppression goals and best serve the community. The DFD's management stated in their response to this part of the recommendation that "We concur that seventy (70) fire fighting companies may not be necessary. We are currently evaluating city-wide demographics based on a recently updated report received from Wayne State University and the Griffith Diagnostic Benchmark report, which was conducted for the City of Detroit in 1998. Upon completion we will determine how to effectively deploy fire companies as we enter the 21<sup>st</sup> century." As of March 2001, no action has been taken concerning the current number of companies needed and deployment. We encourage the DFD to commission a study to determine: (1) where fire companies and stations should be deployed based on current demographics in the City of Detroit; and (2) the number of engine, ladder, squad and special teams (e.g., HAZMAT, confined spaces, etc.) that the City needs to meet its fire suppression goals and best serve the community. The DFD's fire stations and number of fire fighting companies are based on demographics and deployment from over 50 years ago. Many fire stations are outdated with infrastructure problems, such as not being able to bear the weight and/or accommodate the new larger size fire apparatus. The completion of the census provides an opportune time to review the current fire suppression needs of the City and the deployment of resources to address those needs.

If the DFD takes no action to ensure four fire fighters per company, the effectiveness of the fire fighters' responses to emergency incidents is reduced and the safety of fire fighters is at greater risk. In addition, if the DFD does not determine the current fire suppression needs of the City, specifically the number and type (engine, ladder, squad or special team) of fire fighting companies and the deployment based on current and projected demographics, than public safety will not be served effectively and efficiently by the Fire Department.

## **Finding 2: Need to Reduce Injuries and Improve Scheduling of Vacation and Recruit Training**

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The DFD needs to take action to reduce the number of fire fighter injuries and to manage the scheduling of vacations and recruit training more effectively. The DFD has a relatively high number of fire fighters off duty due to injuries and scheduled vacations, at times. In addition, vacancies are not filled on a timely basis due to the lack of opportunities made available for the training of new recruits. As a result, there are fewer fire fighters available on any given day to properly staff companies with the required four personnel per company, which in turn hinders the fire suppression capabilities of these companies.

### **Recommendation**

The DFD needs to take action to reduce the number of fire fighting personnel: lost to injuries; allowed to take furlough or CT time in excess of established limits; and lost to vacancies while waiting for training classes to become available.

An effective risk management program should enable the Department to reduce the number of injuries and time lost. A risk management program would include an injury prevention program, safety training, investigation of injuries and illnesses, and assessment of injury and illness statistics. More effective scheduling of furlough and CT time especially in the summer months will improve daily attendance. Scheduling more training classes with fewer recruits, and filling them as vacancies become available, will allow for more timely processing of new fire fighters.

### **Follow-up Results**

#### **Reducing Injuries**

**Partial corrective action was taken, however additional corrective action is necessary to establish a risk management program.**

The number of injury cases increased from 491 in 1999 to 511 in 2000. However, the number of absences due to injuries was reduced in 2000 from a daily average of 24 personnel in 1999 to 22 personnel. The DFD attributes this to "establishment of regular case management reviews to better track treatment modalities of injured personnel to ensure efficient rehabilitation and speedier recovery".

Although these case management reviews have shortened the time off due to injuries, they do not address injury prevention and reduction in the number of injuries that an effective risk management program would. The DFD had not established a risk management program at the time of our follow-up. The DFD stated in their responses to the audit that "The Detroit Fire Department agrees that a comprehensive risk management program for an analysis of injuries and a methodology for reducing the number of injuries sustained by fire fighting personnel is necessary to reduce the time-loss experienced by the injured fire fighters." The DFD is presently receiving assistance from the Risk Management Division of the Finance Department to design a risk management program.

The DFD requested additional positions for a risk manager and four safety officers in the 2000-2001 Budget, but this was denied by the City administration. We recommend that the City approve these positions in the 2001-2002 Budget and establish a risk management program at the DFD.

If the Department does not implement a risk management program to effectively reduce the number of injuries, it will continue to incur preventable injuries resulting in less than a sufficient number of fire fighters (i.e., four personnel per company) available for fire suppression duties, which could further contribute to additional injuries.

#### **Scheduling of Vacation**

**Corrective action has not been taken.**

The DFD did not improve the scheduling of furlough (vacations) and CT (compensatory time) in 2000. The limit per the contract on the number of fire fighters authorized to be off on furlough and CT at any one time was exceeded on 50 days in the year 2000. On August 23, 2000, the DFD documented that 49 fire fighters were on vacation exceeding the contract limit by 11. On this date, only 245 fire fighters reported for duty and only 17 (or 24%) of the 70 fire fighting companies were staffed with four personnel.

If the DFD does not control the scheduling of vacations more effectively, it will continue to fall short of staffing companies with four personnel each.

#### **Scheduling Training of Recruits**

**Corrective action was taken and results are in progress.**

The DFD has increased the number of new recruit classes since 1999. The Fire Department held one training class each in 1996, 1997, 1998, two in 1999, and two in 2000. Additionally, the DFD has scheduled three recruit classes in 2001.

The class that was completed in September 2000 had 88 graduates. This was far too many for one class and also negatively impacted staffing because of delays to fill such a large class. As a result, the DFD was understaffed the first eight and one-half months of 2000. We recommend that the DFD fill classes with no more than twenty personnel and fill them immediately as vacancies become available.

The DFD gained a net of 65 fire fighters in 2000. A total of 119 new fire fighters were added and 54 retired, resigned, or were discharged in 2000. There were 1,220 fire fighters on January 1, 2000 and 1,254 fire fighters on December 31, 2000 plus 31 recruits in training for a total of 1,285. There were only 12 vacancies, or less than 1% of budgeted fire fighter positions, as of December 31, 2000. The DFD needs to maintain staffing at a relatively high level to enable the DFD to adequately fulfill its duties and functions.

#### **Noteworthy - Attendance Control Program**

It came to our attention during this follow-up that the DFD was beginning to implement its Attendance Control Program. According to management, in the past the Fire Fighting Division's battalion chiefs and company commanders were not properly enforcing the program resulting in an excessive number of absences. The Attendance Control Program monitors the absences of personnel and provides for discipline including discharge of individuals who abuse attendance rules. We encourage the DFD to continue its efforts to improve daily attendance by enforcing the Attendance Control Program.

### **Finding 3: DFD Not Fully Prepared For HAZMAT Incidents**

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The DFD has not deployed its HAZMAT (Hazardous Materials) Response Team. The team is not expected to be deployed until October 1, 1999 and will not be fully functional until the beginning of the new year. In addition, not all fire fighters have received HAZMAT refresher training. As a result, the DFD is not adequately prepared to deal effectively with hazardous materials incidents and the City is more at risk. Also, fire fighters are more at risk to exposure to hazardous substances due to lack of training. Furthermore, the DFD is more vulnerable to fines from the Michigan Occupational Safety and Health Administration (MIOSHA).

#### **Recommendation**

We recommend that the DFD, in light of past problems in dealing with HAZMAT incidents, ensure that the HAZMAT Response Team is activated and deployed as soon as possible. In addition, every fire fighter needs to be provided with annual HAZMAT refresher training to ensure they are adequately prepared to deal with HAZMAT incidents. The Supervisor of Training should report the names of persons receiving HAZMAT refresher training to the Fire Commissioner each year. Annual HAZMAT refresher training should be a condition of fire fighter employment.

#### **Follow-up Results**

##### **Activation of and Deployment of HAZMAT Response Team**

**Partial corrective action was taken, however additional corrective action is needed.**

The HAZMAT team is now operational. The team has had the required training and has been provided the necessary equipment.

However, there is much work to be done, since the DFD was recently fined by the State (MIOSHA) for HAZMAT related violations, such as not surveying and having plans for hazardous materials sites.

##### **Annual HAZMAT Refresher Training for All Firefighters**

**Corrective action has not been taken.**

Not all fire fighters are attending an annual four-hour HAZMAT refresher course as required by the Occupational Safety Health and Administration (OSHA) of the U.S. Department of Labor. Many fire fighters have not attended this class in a number of years. The number attending in 2000 was 347 (or 28%) of the 1,254 fire fighters employed by the DFD on December 31, 2000, which was about the same number trained in prior years.

MIOSHA has cited the DFD on previous occasions and has recently fined the DFD for not providing annual refresher training to fire fighters.

If the DFD continues to ignore the requirement that each fire fighter must attend annual HAZMAT refresher training each year, it increases the risk for fire fighters and the public to exposure to hazardous substances. In addition, the City is subject to fines and possible criminal charges from MIOSHA.

#### **Finding 4: Need to Improve Training of Fire Fighters**

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The DFD is not meeting its training goals or conducting the required training of fire fighters. As a result, there is a lack of assurance that all fire fighters are knowledgeable of their duties and responsibilities, and the latest fire fighting techniques. In addition, fire fighters and the citizens they protect may be at greater risk because of the lack of training. Further, the DFD is subject to fines from the Michigan Occupational and Safety and Health Administration (MIOSHA) for not conducting mandated training (e.g., HAZMAT refresher training).

#### **Recommendation**

We recommend that the DFD make training of fire fighters a priority and comply with Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA) regulations and National Fire Protection Association (NFPA) standards. We recommend the DFD prepare a written policy, which establishes the type, amount, and frequency of training to be provided to fire fighters. This includes in-service training by company commanders and training academy courses to be provided by training instructors. This policy must be communicated to all fire fighting and training personnel.

The DFD must provide all fire fighters with annual HAZMAT refresher courses and other required training. Interior structural fire fighting training must be conducted at least quarterly.

All drivers must pass certified driver training programs. The DFD needs to check training records for all current drivers and require those without certification to attend a driver training program.

The Supervisor of Training should be held accountable for providing company commanders with subject matter for training, supervising the in-service training program, and reviewing and approving lesson plans prepared by company officers.

Company officers should be held accountable to conduct in-service training and provide the Supervisor of Training with an annual report on training sessions held, subjects covered, and hours provided, and the company members in attendance. The Supervisor of Training should document this training in the fire fighters training records. The Supervisor of Training should report to the Fire Commissioner those company commanders not conducting the required training.

We recommend the DFD establish a written policy requiring all fire officers to attend fire officer courses within six months of any promotion. Fire officer training should be made a condition of any promotion. Also, the DFD should require all fire officers to attend officer training each year.

We recommend the Fire Chief be required to evaluate the effectiveness of the DFD's training and report to the Fire Commissioner on an annual basis. We also recommend the Supervisor of Training be required to report all training and the fire fighters trained to the Fire Commissioner each year.

### **Follow-up Results**

**Partial corrective action was taken, however additional corrective action is needed.**

The DFD did not provide the required training of fire fighters in the year 2000. As previously noted, not every fire fighter received annual HAZMAT refresher training. In addition, in-service and fire officer training were not accomplished. We reviewed training records for a sample of 29 veteran fire fighters and found that 15 (or 52%) received some form of training in 2000. Only 6 (or 21%) of the 29 fire fighters received HAZMAT refresher training in 2000.

The DFD did prepare in-service and formal training plans and policy in the year 2000. Also, the amount of training and courses offered did increase in 2000. Noteworthy was the additional drivers training and the incident command class provided to fire fighters. In-service training was scheduled to begin January 1, 2001. However, we did not see any evidence of training being conducted during our follow-up, although we did find that course materials were provided to three of the four companies that we visited.

The DFD does not have the facilities to conduct effective on site internal structural fire fighting classes. The DFD plans include building a new training facility that will enable it to provide fire fighters with such training. Until the new facility is operational, the DFD cannot comply with this requirement.

There was no documentation to evidence that the Fire Chief of the Fire Fighting Division evaluated the effectiveness of training. In addition, there were no annual reports on training accomplishments prepared by the Fire Chief or Supervisor of Training.

It is important that the DFD provide fire officers (from sergeant to chief levels) with fire officer training to enable them to provide improved leadership, management, and administration of the DFD Fire Fighting Division. Fire Officer training should be a requirement established by the Fire Commissioner and should be a condition for every officer position in the DFD. As noted in the audit report and in this follow-up, the DFD was not: (1) enforcing attendance control and training policies; (2) providing fire fighters with the necessary equipment and fire apparatus in good working condition; and (3) holding responsible personnel accountable. These findings are in part a result of poor management including a lack of knowledge by fire officers of the DFD's policies, goals, and requirements. Fire officer duties and responsibilities are much more than those required of fire fighters.

The DFD presently promotes personnel to fire officer positions based strictly on seniority. The agreement between the City and the Detroit Fire Fighters Association states that "Promotions in the fire department shall be based on length of service therein. The officers or employee thereof having served the longest period in any position shall be advanced to fill any vacancy in the next higher position, if he shall have the qualifications therefor. Promotional qualifications shall be determined by the Fire Commissioner. Such promotional qualifications shall be reasonable, relevant, objective, non-arbitrary and non-competitive". Also, the agreement states that "no written qualifying examinations [e.g., San Jose, California Fire Department

has a promotional examination], competitive or non-competitive, shall be required as a condition of promotion".

The DFD Job Description for Battalion Fire Chief, last revised June 13, 1967, states in part "Education equivalent to graduation from an accredited high school, and preferably some formal course in public or business administration or engineering; successful completion of in-service or equivalent training courses in supervision and management, preferably including all the following: Orientation for Supervisors, Practical Psychology for Supervisors, Communication in Supervision, Labor Relations, and Leadership in Supervision, or equivalent courses in a recognized educational institution." The DFD is not ensuring that these minimum requirements are being met and no longer provides the in-service or equivalent training courses for supervisors as noted above.

The Fire Commissioner has not enforced promotional qualifications or requirements for additional training or education nor updated them even though the requirements of Chief positions include leadership, management, and accountability for the fire fighters that they supervise. If the DFD fails to provide the required training, it will continue to have performance problems and will be subject to fines and possible criminal charges from MIOSHA. In addition, fire fighters and the citizens they protect may be at greater risk because of the lack of training.



### **Finding 5: Replacement Program Needed for Fire Apparatus**

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The DFD has no systematic replacement program for fire apparatus. The ages of many ladder trucks are greater than their expected service life, resulting in excessive breakdowns and needed repairs. In addition, many ladder trucks do not have serviceable water pumps and aerial devices. Furthermore, parts are difficult to obtain for older vehicles causing more downtime. The engine fleet is much younger and in better shape.

#### **Recommendation**

We recommend the DFD implement a systematic replacement program to replace all first-line engines every ten years and all first-line ladder trucks every fifteen years. This would require purchasing four engines and one to two ladder trucks each year, if the current number of companies is maintained.

#### **Follow-up Results**

**Corrective action was initiated and results are in progress.**

The DFD has established a vehicle replacement program requiring replacement of all: (a) platform trucks every 12 years; (b) engines, ladders, squad vehicles and quint trucks every 10 years; and (c) ambulances every 3 years. The vehicle replacement program is scheduled to start in the fiscal year 2002-2003, and will require the purchase of 4 engines, 2-3 ladders, and 16 ambulances every year.

The DFD acquired 14 new engine trucks, 2 new platform trucks and 11 new ambulances since our audit in September 1999. The DFD is scheduled to receive 2 new engine trucks, 11 ladder trucks, 6 squad vehicles, 9 ambulances and 22 other vehicles in the 2001 calendar year.

The average age of first-line engine trucks has been reduced from 7 years to 4.6 years since the audit.

However, the average age of the first-line ladder trucks has not changed from the 12 years noted in the audit. Ladder trucks are still old and in poor condition. There are no reserve ladder trucks and reserve engines are given to ladder companies when their vehicles are out of service for repairs or maintenance. During our follow-up, we noted 7 (or 29%) of the aerials and 15 (or 63%) of the water pumps were out of service on the 24 first-line ladder trucks. A total of 11 ladder trucks are on order and should be received in 2001, which should greatly improve the condition of the ladder trucks and performance of the ladder companies.

The DFD needs to ensure that the vehicle replacement program is adhered to starting in the fiscal year 2002-2003 and every year thereafter. Otherwise, it will be faced with the crisis experienced presently and in the past few years with old, broken down fire apparatus.

### **Finding 6: Preventative Maintenance, Oil Changes, and Service Tests Need to be Completed as Required**

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The DFD Apparatus Division is not performing preventative maintenance inspections, oil changes, aerial tests, water pump tests, and fire hose tests as required. As a result, there is a lack of assurance that vehicles and equipment are properly maintained, which could lessen service life and increase the maintenance workload.

#### **Recommendation**

We recommend the Superintendent of Apparatus be held accountable for ensuring PMs [Preventive Maintenance Program inspections], oil changes, aerial tests, pump tests, and fire hose testing, and other tests are performed as required. The Superintendent of Apparatus should report the number of PMs, oil changes, aerial tests, pump tests, fire hose testing, other tests, and vehicles tested for each month to the Fire Commissioner. Numerical targets should be established and personnel should be held accountable for attaining them.

#### **Follow-up Results**

**Partial corrective action was taken, however additional corrective action is needed.**

The DFD Apparatus Division has been performing some of the required preventative maintenance inspections in the calendar year 2000. As of February 9, 2001, 73% (or 29) of the 40 engine companies have had their fire hoses inspected and tested. In addition, three aerials were repaired and tested in 2000. This is an improvement since our audit. However, much more testing needs to be done.

Water pump tests for engines and ladders were not done in 2000. Service tests were not performed for all aerials on ladder trucks and for all water pumps on ladder and engine trucks.

Although much of the fire hose is over eight years old and should be replaced, it is not being replaced because the DFD lacks sufficient replacement fire hose.

The Superintendent of Apparatus did not prepare monthly reports to the Fire Commissioner on the preventative maintenance inspections, and tests for aerials, water pumps and fire hoses in the calendar year 2000, as we recommended in the audit report.

If the required preventative maintenance and tests are not done, fire apparatus could break down more often, particularly in emergency situations, and the service life of the apparatus will likely be lessened.

### **Finding 7: Need for Meaningful Vehicle Maintenance Records and Reports**

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The DFD does not have adequate vehicle maintenance records and reports. As a result, the DFD lacks essential information to manage its fire apparatus fleet.

#### **Recommendation**

We recommend the DFD establish an effective vehicle maintenance record keeping system. Any vehicle maintenance record keeping system needs complete maintenance records for each vehicle that includes age, downtime, annual maintenance cost, replacement parts, date and description of work done, mechanic doing work, PMs, oil changes, aerial tests, pump tests, fire hose tests, repairs needed (per PM and company annual reports), and other pertinent information.

The Superintendent of Apparatus needs to provide reports to the Fire Commissioner on the number and type of vehicles in for repair, downtime, major repairs needed, expected time back in service, and number of reserve vehicles available for service at the end of the month. Also, an annual report on the condition of the fire apparatus fleet identifying problems and successes should be prepared annually. It should also include the age, service life remaining, recommended replacement date, and a list of repairs needed for each vehicle.

A good vehicle maintenance record keeping system is important for accountability. Mechanics need to be held accountable for completing assigned work, and given deadlines and quantitative targets. For example, each PM mechanic is required to perform one PM and oil change per day and two hundred in a year.

The DFD management suggested that when a fire company brings a fire apparatus in for service, a representative from the Apparatus Division should complete a form (e.g., an estimate) recording the time the vehicle came in, nature of the problem or service, estimated time to repair, the name and telephone number of the fire company representative, sign it, and give a copy to the company representative. Repairs would be tracked and if the vehicle couldn't be completed in time, then the company would be notified. This is routinely done for personal vehicles taken to auto repair shops, and it should be done for fire apparatus. We recommend this become part of the Apparatus Division's standard operating procedures.

#### **Follow-up Results**

**Partial corrective action was taken, however additional corrective action is needed.**

The DFD is waiting on the Detroit Resource Management System (DRMS) work order system to be implemented to have meaningful vehicle maintenance records and reports. Fire Apparatus Division personnel attended meetings on the work order system in January 2001, but it is unlikely that it will be implemented soon.

The DFD Fire Apparatus Division record keeping has not changed much since the audit. However, reporting has improved and it now prepares daily and weekly reports that provide the DFD with information on vehicles being repaired and repairs needed. The Apparatus Daily Repair Report provides information on: (1) the date a vehicle came in for maintenance or repairs; (2) the date it is expected to be returned to the company; (3) description of repairs to be made; and (4) mechanic assigned to

the vehicle. The Apparatus Division Weekly Report provides information on vehicles out of service and repairs needed for the entire fleet.

The DFD still lacks detailed maintenance reports on vehicles that would document repairs made to the vehicle, time out of service, parts placed on the vehicle, part and labor costs, and other data about vehicle maintenance. The DRMS work order system should provide this information.

The DFD Apparatus Division was not provided the annual reports of fire companies, which detail the problems noted for each company's fire apparatus. There was no record at the Fire Apparatus Division that could detail the condition and repairs needed for each piece of fire apparatus.

Many fire apparatus need body work and minor repairs. As noted previously, many ladder trucks do not have working aerials or water pumps. Basically, the Apparatus Division is still mainly making emergency repairs to keep vehicles running. It would be useful to identify repairs needed for each vehicle to assess the capability of the fleet.

It came to our attention, while performing the follow-up review, that the NFPA issued a new standard, NFPA 1071, in August 2000, which establishes additional knowledge, skills, and job performance requirements for emergency vehicle technicians (EVTs). The NFPA 1071 also requires that fire departments establish instructional priority and training program content to prepare mechanics to meet these additional job performance requirements. Presently, the DFD's job descriptions for EVT's are outdated and need to be updated to reference and satisfy the NFPA 1071 requirements.

#### **Follow-up Recommendations**

We recommend that the DFD work with DRMS personnel to implement the work order system as soon as possible. Without a good work order system that produces meaningful vehicle maintenance records and reports, the DFD will lack essential information to manage its fire apparatus fleet.

In addition, we recommend that annual reports of each DFD fire company be provided to the Fire Apparatus Division to facilitate assessment of the condition of the fleet and to better respond to the fire apparatus needs of the DFD.

We also recommend that the DFD upgrade its job descriptions and provide training for mechanics to meet the emergency vehicle technician (EVT) requirements of NFPA 1071.

### **Finding 8: Need for an Effective Inventory Control System**

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The DFD needs to establish an effective inventory system for automotive parts, fire fighter equipment, and supplies. During our audit, the Department started to establish a manual record keeping system for inventory, however, it was incomplete and there were other weaknesses (e.g., too many personnel with access to the storeroom).

Good internal accounting control requires the maintenance of complete and accurate records for all assets, including inventory items. In addition, inventory counts need to be taken periodically to ensure records are accurate. Without accurate and reliable inventory records, the Department is less likely to be aware of theft (e.g., the DFD purchases a large number of automotive parts) or loss of inventory items. Also, there is an increased risk of ordering too much or not enough of selected inventory items. The Department is subject to continually running out of critical items and having lengthy delays in replacing them. Also, missing items are more likely to go undetected and obsolete items are less likely to come to management's attention.

#### **Recommendation**

We recommend the DFD continue improving the inventory control system and adopt the following recommendations:

- Give priority to establishing a new inventory record keeping system as soon as possible. The Department should work with DRMS to become one of the first City Departments on line with the new Oracle Inventory System.
- Conduct a complete physical inventory of all items and reconcile the count to the records. Test counts and reconciliations with the records should be performed monthly, until reliance can be placed on the new system. Afterwards, inventory counts and reconciliations should be performed at least semiannually.
- Reorder points should be established for critical parts, supplies, and equipment. Orders (requisitions) should be placed as soon as possible for items near, at, or under the reorder point.
- Access to the storeroom should be restricted to only storekeepers or personnel assigned as storekeepers, who are trained in the new inventory system and are accountable for maintaining accurate inventory records for all parts, supplies, and equipment. Such personnel should staff the storeroom during all of its hours of operation.
- The DFD should take immediate action to ensure an adequate supply of bunker gear, one and one-half inch fire hose, foam for gasoline fires, helmet shields, ground ladders, and other critical parts, supplies, and equipment are maintained.
- The DFD should take action to ensure that all fire fighters have the required gear and equipment. Battalion Chiefs should be required, as soon as possible, and on an ongoing basis, to determine any protective equipment and gear needed for each fire fighter in their battalion.

### **Follow-up Results**

#### **Corrective action has not been taken.**

The DFD has not established an inventory control system for parts, supplies, and equipment. In addition, reorder points have not been established and physical inventories have not been completed. Also, access to the storeroom has not been restricted.

The DFD needs to work with Information Technology Services (ITS) personnel responsible for DRMS to establish an inventory system. An attempt was made to establish an inventory system in the year 2000, but it was not completed. The DFD personnel were not working with DRMS personnel to implement this system. The DFD needs to obtain approval from the ITS Department before it implements any inventory or other system that could be incompatible with DRMS.

The DFD was still short on replacement fire hose, mainly two and one-half inch, during our follow-up review. Considering the problems with malfunctioning fire hydrants, which cause fire fighters to stretch additional two and one-half inch fire hose, the DFD needs to ensure there is adequate replacement fire hose in inventory.

There was no documentation to evidence that Battalion Chiefs were inspecting fire fighters to ensure that they had required gear and equipment. Such inspections should be documented so that the DFD can properly assess fire fighter gear and equipment needs.

Without an effective inventory system and restricted access to the storeroom, the DFD has an increased exposure to theft or loss of inventory items. In addition, it is more likely to run out of critical supplies such as fire hose and repair parts and have lengthy delays in replacing them.

### **Finding 9: Need to Inventory and Test SCBA Air Cylinders as Required**

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The DFD does not maintain a complete inventory of all SCBA (Self-Contained Breathing Apparatus) air cylinders and is not having them tested and certified as required by federal regulations and NFPA standards. As a result, the DFD lacks assurance that air cylinders are safe and that there are enough serviceable air cylinders available for fire fighters.

#### **Recommendation**

We recommend that the Apparatus Division immediately take an inventory of all SCBA air cylinders and ship the one hundred seventy ready for testing and certification. There should be six hundred thirty-two air cylinders on the first-line fire apparatus (three hundred twenty cylinders on forty engines, two hundred forty on twenty-four ladders, and seventy-two on six squad vehicles) plus a sufficient number in reserve to allow for usage, damage, and testing.

The Superintendent of the Apparatus Division should be required to report to the Fire Commissioner the total number of air cylinders on first-line vehicles and in reserve each year. In addition, this annual report should include the serial number, date of purchase, date of manufacture, date placed in service, location, hydrostatic test pressure and dates, and the types of inspections and repairs completed for each air cylinder.

#### **Follow-up Results**

**Partial corrective action was taken, but additional corrective action is needed.**

The DFD is in the process of taking an inventory of all SCBA air cylinders and making the required tests. As of November 15, 2000, a total of 32 engine trucks, 8 ladder trucks, and 6 squads were surveyed for SCBA air cylinders. As of February 20, 2001, the DFD records document that 962 air cylinders were tested, as required, and in satisfactory condition. Air cylinders over 15 years old are being taken out of service, as required.

DFD personnel told us that the Department owns approximately 1,006 air cylinders. In addition, another 200 air cylinders with a 30-year service life are being ordered and will be purchased with fiscal year 2001 budgeted funds. As noted above, the first line-fire apparatus require 632 air cylinders and presently there appears to be a sufficient number of air cylinders owned by the DFD.

The Superintendent of the Apparatus Division did not provide an annual report to the Fire Commissioner on the total number of air cylinders on first-line vehicles and in reserve for the year 2000, as we recommended.

The DFD needs to complete the air cylinder surveys and determine the total number of air cylinders that it owns. In addition, it needs to continue the good work it has been doing in the past year to ensure air cylinders are properly tested and remove old air cylinders over 15 years of age from service.

If the DFD fails to perform all of the required testing and physical inventories, there could be fewer serviceable air cylinders available to fire fighters and fire fighter safety could be at increased risk. In addition, the DFD could be subject to fines from MIOSHA.

### **Finding 10: Need to Deliver Equipment and Supplies to Fire Fighters**

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Fire fighters drive their fire engines and ladder trucks to the Apparatus Division storeroom to pick up needed supplies and equipment. This is very inefficient. It takes companies out of their geographic areas of operation and could result in slower responses to any fires in their areas. In addition, it places added wear and tear on vehicles.

#### **Recommendation**

We recommend the DFD create a delivery system similar to that of the EMS Division to provide supplies and equipment to fire fighters at their fire stations. Fire fighters should not be allowed to take vehicles out of their areas of operation other than for incident response and necessary repairs.

#### **Follow-up Results**

**Partial corrective action was taken, however additional corrective action is needed.**

During our follow-up, the DFD was not delivering equipment and supplies to fire fighters. However, the Deputy Fire Commissioner told us that delivery of equipment and supplies would be made to fire fighters, effective March 20, 2001. A driver has been assigned to the Apparatus Division to deliver supplies to the fire stations.



### **Finding 11: Repairs Needed for Fire Stations and Training Academy**

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Repairs are needed at various fire stations and the Training Academy facility. These include roofing, plumbing, window, and electrical repairs. Proper maintenance of facilities is important for the safety, welfare, and morale of fire fighters.

#### **Recommendation**

We recommend that the DFD determine the repairs needed at each fire station and the training facility. A prioritized program should be developed to systematically address all items identified. The building maintenance staff should be given a quota of repairs and a time frame to complete them. Building maintenance staff needs to be held accountable for making necessary repairs to DFD facilities.

#### **Follow-up Results**

**Partial corrective action was taken, however additional corrective action is needed.**

The DFD has developed a five-year capital agenda, which includes major repairs for nine fire stations each year with all to be completed in approximately five years. Major repairs include roof repairs, window replacements, heating system repairs, etc. Nine fire stations had major repairs in 1999 under this plan. In addition, the fire station housing engine company number 5 was completely renovated. On November 13, 2000, major repairs were scheduled for nine more fire stations.

The DFD is not making timely repairs for less serious building maintenance problems such as roof leaks, leaking faucets, broken windows, plastering, and painting. Many repairs needed that were listed on the 1999 annual reports of fire companies were not corrected and were repeated on the 2000 annual reports.

Most of the fire stations are over fifty years old and many do not properly accommodate the new apparatus. Some fire station floors need to be reinforced to take the increased weight of the new vehicles. Doors on some fire stations cannot accommodate the height of new vehicles. Some fire stations can barely accommodate the length of the new vehicles. As noted in the first finding, population demographics have changed in the City, but the deployment of fire stations has not. We encourage the DFD to commission a study to determine: (1) where fire companies and stations should be deployed based on current and projected population demographics in the City of Detroit; and (2) the number of engine, ladder, squad, and special (e.g., HAZMAT, confined spaces, etc.) teams that the City needs to meet its fire suppression goals and best serve the community. It is an ideal time to review the current fire suppression needs of the City. In addition, this will enable the DFD to plan its infrastructure needs and avoid costly renovations and repairs for fire station sites that no longer meet the City's fire suppression needs.

### **Finding 12: Need for Reorganization**

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The current organization structure is not conducive to running the DFD effectively and the DFD lacks qualified professional civilian administrative staff that can provide the Department with the necessary management, skill sets, and information it needs.

Due to the lack of professional civilian administrative personnel the Department management information system is poor. Statistics, records, and reports are not maintained, and analyses are not performed as needed and required. DFD management does not have the tools to properly assess its human resources, fire apparatus, equipment, maintenance, training, and budgetary needs, and to properly evaluate its performance.

#### **Recommendation**

We recommend that the DFD consider an organizational structure which groups related functions and clarifies the organization, making it easier to see where responsibility for various functions lies.

We also recommend that the Department reorganize the DFD to include professional civilian administrative staff that can provide the Department with the necessary management, skill sets, and information it needs.

#### **Follow-up Results**

**Limited corrective action was taken, and significant additional corrective action is needed.**

The DFD's response to this finding was that " We concur with the Auditor General's recommendation that to provide quality, effective and efficient service a reorganization as it currently exists must occur. We recognize that the severe lack of professional civilian administrative personnel in areas such as planning, accounting, human relations, labor relations, risk management, public relations and information technology can only be accomplished through a comprehensive reorganization." According to the Deputy Commissioner, the Fire Chief is now responsible for the organizational control of all fire fighting companies and they are no longer divided among the DFD's three general managers.

Civilian administrative staff have not been added. The Budget Department has not approved the DFD's request for additional administrative staff, including a Risk Manager and Safety Officers. Without additional administrative staff to establish and maintain an effective management information system, the DFD management will continue to be ineffective in holding responsible personnel accountable for doing their jobs.

As noted previously, we encourage the DFD to commission a study to determine: (1) where fire companies and stations should be deployed based on current and projected population demographics in the City of Detroit; and (2) the number of engine, ladder, squad, and special (e.g., HAZMAT, confined spaces, etc.) teams that the City needs to meet its fire suppression goals and best serve the community. In addition, we encourage the DFD to study its current organizational structure and benchmark with successful fire departments in other cities to determine the personnel it needs to properly manage and administer the Department.

Other key organizational issues, which were not included in our performance audit report that impact the management and performance of the DFD and need to be addressed are: (1) qualifications for fire officers, specifically Battalion and Division Chiefs; and (2) the impact of a single union for both fire fighters and fire officers, including the Fire Chief.

Fire officers including Battalion Chiefs and Division Chiefs, such as the Superintendents of Apparatus and Training, are promoted based solely on seniority. The job description for the Superintendent of the Apparatus Division has not been updated since 1958. Educational requirements only include education equivalent to graduation from a four year high school. Other cities in the State of Michigan require their fire officers to have additional training in addition to experience to enable them to properly manage and lead fire fighters under their command. The findings detailed in the audit report and in this follow-up report are caused, in part, by poor management resulting from a lack of knowledge by fire officers of the DFD's policies, procedures, goals, and the NFPA's standards.

Michigan law permits fire officers and the fire fighters they supervise to be in the same bargaining unit, creating an environment conducive to conflicts of interest. According to the DFD's management, this is a main cause for the lack of enforcement of the DFD Attendance Control Program, which has resulted in excessive absences that adversely impacts daily par strength. State law excludes executive or supervisory positions from a bargaining unit of employees, but makes a special exemption for firefighters by stating that no person subordinate to a fire commissioner shall be deemed a supervisor. Although, fire officers are responsible for supervision and discipline they are not considered by state law to be supervisors. The Labor Relations and Mediations Act (Act 176 of 1939, as amended) Sec. 9e states "The commission, after consultation with the parties shall determine such a bargaining unit as will best secure to the employees their right of collective bargaining. The unit shall be either the employees of 1 employer employed in 1 plant or business enterprise within the state, not holding executive or supervisory positions, or a craft unit, or a plant unit, or a subdivision of the foregoing units". The Public Employment Relations Act (Act 336 of 1947, as amended), Sec. 13, provides "that in any fire department, or any department in whole or part engaged in, or having the responsibility of, fire fighting, no person subordinate to a fire commission, fire commissioner, safety director, or other similar administrative agency or administrator, shall be deemed to be a supervisor". The DFD will always fall short in the area of accountability as long as fire officers remain in the same union as the fire fighters.

To enhance the DFD's ability to improve the management and performance of its functions, management needs to implement one or more of the following steps cited in this recommendation and elsewhere in this report: (1) obtain professional civilian administrative personnel to improve management information and accountability, (2) update job descriptions for fire officers and require ongoing training and education, (3) take action to cause separate unions for fire officers and fire fighters, (4) determine the number and type of fire fighting companies actually needed, and (5) determine the deployment of fire stations throughout the City based on current and projected demographics in the City of Detroit.